

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLXIII.

ADDITIONS TO THE GENUS FLEISCHMANNIOPSIS.

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The genus Fleischmanniopsis was originally established for three species of Critonioid Eupatorieae (King & Robinson, 1971). Continuing research both in the field and in the herbarium have yielded the following two new species and new combination presented below. The type species of Fleischmanniopsis, F. leucocephala (Benth.) K & R, is notable for the white color of the involuclral bracts, a condition that is evident very early in the developing inflorescence. There has been a tendency to dismiss all such material as one species, but specimens from southern Guatemala and El Salvador prove to be distinct. A single specimen with white involuclres from Chiapas proves to be a third distinct species.

Immaturity of specimens is a problem in the genus. The white involuclres show from very early stages in development and many specimens are collected in the erroneous assumption they are mature. This factor obscures some of the species limits since the smaller head size and early deciduous primary leaves in F. anomalochaeta are not evident in comparisons of immature specimens. Williams' concern with immaturity in F. mendax seems unwarranted, however, since an isotype (GH) is sufficiently developed and shows larger heads than any seen in F. leucocephala. Williams was perhaps misled by the apparently characteristic greenish rather than whitish involuclre in F. mendax.

The concept of the genus is expanded here to contain 5 species. The increased diversity of the species level reenforces the generic distinctions and some new characters can be added. Fleischmanniopsis is regarded as Critonioid and because of the broadened and thickened clavate tips of the style branches a relationship might be suggested to Critoniadelphus. There is some resemblance in habit between that genus and F. nubigenoides (B.L. Robinson) K. & R., a resemblance that led to the species name of the latter. Differences, however, discourage any thought of close relationship. In Fleischmanniopsis, the inner involuclral bracts are usually persistent, the pollen is only 18-20 $\mu$  in diameter, the anther collars are annulated, the corolla

lobes are nearly glabrous, the pappus is in a single uncongested row of slender setae, the carpodium is pale and tapering with a sharp upper rim, the anthers are partly to completely pinkish as seen through the thin corollas, the anther appendage is less than half as long as wide, the ribs of the achene are narrow and not noticeably corticated, the leaves are trinervately rather than pinnately veined, and the corollas have veins ending below the lobes. Fleischmanniopsis was named after the resemblance of the achene and the shape of the corolla lobes to those of Fleischmannia. The latter genus does not seem particularly closely related, however, differing by the corolla lobes papillose on both surfaces with papillae on the upper ends of the cells, the veins of the corollas extending into the corolla lobes and being greatly thickened in the lower throat, the corolla having a distinct short basal tube, the anthers not being reddish, the style branches lacking nodular tips but being densely covered with elongate papillae, the head usually containing 20 or more flowers with 10 in only one species, and the anther appendage being longer than wide.

The five species of Fleischmanniopsis may be distinguished by the following key.

1. Inflorescence corymbose or pyramidally paniculate; leaves trinervate from well above base, secondary veins parallel with basal margin ----- 2
2. Involucre brownish at maturity; leaves membranous, dark when dry, acuminatum less than 1/5 of leaf length; pappus ca. 3 mm long; corolla glabrous inside F. nubigenoides
2. Involucre whitish; leaves herbaceous, green when dry; acumination  $\frac{1}{4}$  of leaf length; pappus ca. 2 mm long; corolla with hairs inside at the bases of the filaments----- F. langmaniae
1. Inflorescence thyrsoid-paniculate, elongate cylindrical; leaves trinervate from at or near the base, secondary veins diverging from basal margins--- 3
3. Heads ca. 7 mm long, involucre greenish at maturity; leaf lamina rounded at base, trinervate from base, tip abruptly acuminate--- F. mendax

3. Heads 4-6 mm long, involucre white at maturity; leaf lamina acute at base, trinervate from above base, tip gradually acuminate----- 4
4. Heads ca. 4 mm long; tips of pappus setae contorted and irregularly barbellate; achene scabrous throughout; primary leaves usually lacking at anthesis----- F. anomalochaeta
4. Heads mostly 5-6 mm long; tips of pappus setae straight and antrorsely scabrid; achene usually glabrous below; primary leaves persistent through anthesis - F. leucocephala

Fleischmanniopsis anomalochaeta R. M. King & H. Robinson, sp. nov. Plantae fruticosae 1.0-1.5 m altae multo ramosae. Caules glabri in nodis paucè minute puberuli teretes vel subtiliter hexagonales flavo-fulvescentes. Folia opposita, petiolis 0.5-2.5 cm longis; folia primaria ca. 10-11 cm longa et ca. 4 cm lata; saepe per anthesin decidua; folia ramosa plerumque 2-5 cm longa et ca. 1 cm lata; laminae ovatae vel late lanceolatae base acutae vel late cuneatae fere ad basem valde trinervatae margine utrinque argute 5-13-serratae apice sensim anguste acuminatae supra et subtus sparse puberulae. Inflorescentiae elongatae thyrsoido-paniculatae ampliatae, ramis et ramulis puberulis vel dense puberulis. Capitula in ramulis corymbosis congesta ca. 4 mm alta et 1.5-1.8 mm lata. Squamae involucri ca. 3-seriatae ca. 15 albae ovatae vel oblongae 1-3 mm longae 0.5-0.9 mm latae margine minuto fimbriatae extus glabrae vel subglabrae exteriores apice minute apiculatae interiores obtusae vel rotundatae. Flores 7-9; corollae albae 2.0-2.2 mm longae anguste infundibulares, tubis angustatis indistinctis, lobis ca. 0.3 mm longis et 0.25 mm latis; filamenta in parte superiore ca. 0.3 mm longa parietibus cellularum dense annulatis; thecae antherarum ca. 0.5 mm longae, appendices truncatae ca. 0.05 mm longae et 0.15 mm latae. Achaenia 1.1-1.5 mm longa ubique sparse setifera; setae pappi ca. 18-20 non contiguae 2.0-2.5 mm longae apice contortae saepe tenues patentiter vel retrorse spiculiferae. Grana pollinis 18-19 $\mu$  diam. minute papillosa.

TYPE: GUATEMALA: Sacatepequez: along the dirt road to Antigua, ca. 13 kms generally N of Escuintla. Elevation ca. 3,200 ft. 23 January 1977. R. M. King 7179

(Holotype US). Paratypes: GUATEMALA: Sacatepequez: along the dirt road to Antigua, ca. 11 kms generally N of Escuintla. Elevation ca. 2,500 ft. 23 January 1977, King 7177 (US). Dry secondary forest, lower slopes Volcan de Fuego, 3 km southwest of Alotenango, 1,200-1,300 m January 15, 1974, Williams & Williams 43469 (US). Dry thickets between hills Agua and Fuego Volcãoes, road to Alotenango, elevation 1,200 m Molina et al 16666 (US). Escuintla: along the road to Escuintla, ca. 16 kms generally SW of Amatitlan. Elevation ca. 2,750 ft, King 7169 (US). Amatitlan: Palin, alt. 3,560 ft. John Donnell Smith 2843 (US). EL SALVADOR Ahuachapan: Sierra de Apaneca, in the region of Finca Colima, Jan. 17-19, 1922, Standley 20160 (US). Without precise locality, all Sisto Alberto Padilla 250, 280, 281 (All US).

The new species has the general aspect of the common Fleischmanniopsis leucocephala but is most distinct in the contorted, tenuous and uniquely barbellate tips of the pappus setae. In the typical form the barbs of the setae are proliferated into papillae and bifid tips that appear almost haustorial. The character is weakly developed in only one of the collections seen. The concept is reenforced by the smaller heads and the more setiferous achenes. The heads are 4 mm long while mature heads of F. leucocephala are 5-6 mm long. The achenes are prominently scabrous to the base while those of F. leucocephala are almost glabrous. A few specimens of the latter species from central Mexico have achene pubescence as in F. anomalochaeta but apparently represent a parallel variation.

The new species can be recognized in the field by subtle differences in aspect. The smaller heads contribute to the appearance but might be confused with immature specimens of F. leucocephala. Specimens of F. anomalochaeta also are usually distinctive in the numerous lateral shoots with small leaves. Larger leaves occur on the main stems but are apparently usually lost before anthesis. In contrast, F. leucocephala has persistent primary leaves and branchlets bearing smaller leaves are usually not prominent.

Fleischmanniopsis langmaniae R. M. King & H. Robinson, sp. nov. Plantae fruticosae ca. 1 m altae laxae ramosae. Caules glabri vel subglabri teretes vel subtiliter hexagonales fulvescentes. Folia opposita, petiolis 0.5-1.5 cm longis; laminae ovatae plerumque

4.5-10.0 cm longae et 1.5-3.5 cm latae base acutae margine 5-9 argute serratae apice sensim anguste acuminatae supra et subtus sparse puberulae distincte supra basem trinervatae, nervis secundariis marginis basilariibus parallelis. Inflorescentiae pyramidaliter paniculatae ampliatae, ramis et ramulis puberulis vel dense puberulis. Capitula in ramulis subcorymbosis subcongesta ca. 5 mm alta et 3 mm lata. Squamae involucri ca. 18 albae 1-3-purpureo-lineatae orbiculatae vel oblongae 0.7-3.7 mm longae et 1.0-1.4 mm latae margine minute fimbriatae extus glabrae apice rotundatae. Flores 7-9; corollae albae in nervis purpureis ca. 2.5 mm longae anguste tubulares superne infundibularis, tubis indistinctis, faucis base intus sparse puberulis, lobis ca. 0.35 mm longis et 0.3 mm latis extus 0-2-setiferis; filamenta in parte superiore ca. 0.25 mm longa base indistincta, parietibus cellularum dense annulatis; thecae antherarum ca. 0.55 mm longae, appendices truncatae vel retusae ca. 0.05 mm longae et 0.15 mm latae. Achaenia 1.5-1.7 mm longa glabra vel apice pauce spiculifera; setae pappi 25-35 contiguae ca. 2 mm longae ubique aequicrassae et aequiscabrae. Grana pollinis ca. 17 $\mu$  diam. minute papillosa.

TYPE:MEXICO: Chiapas: between San Fernando and Plan de Ayala, 4/17/49, Ida K. Langman 3914 (Holotype US).

Fleischmanniopsis langmanae is most closely related to F. nubigenoides in the more broadly paniculate inflorescence and in the venation of the leaves. The trinervation of the leaves is farther from the base of the lamina and parallel to the basal margin as in F. nubigenoides. The two species also seem to share somewhat broader basal tubes on the corollas and pappus setae of even width and equally distributed scabrosity. The new species is more like F. leucocephala by the whitish involucre and differs from F. nubigenoides also by the shorter florets and shorter pappus. The new species is unique in the genus by the hairs inside the corolla at the bases of the filaments.

The following variety should be added to the genus.

Fleischmanniopsis leucocephala (Benth.) R.M.King & H. Robinson var. anodonta (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium leucocephala Benth. var. anodontum B.L.Robinson, Proc. Amer. Acad. 51:534. 1916. Mexico.



R&K  
7179

ASTERACEAE OF GUATEMALA

Cytological and/or Botanical Vouchers

ROBERT MERRILL KING, no. 7179 23 January, 1977

*Fleischmanniopsis anomalochaeta* R. M. King &  
H. Robinson

HOLOTYPE

occasional straggles 1-2 m tall, flowers  
'greenish'-white.

Sacatequez, along the dirt road to Antigua,  
ca. 13 kms generally N of Escuintla.  
Elevation ca. 3,000 ft.

UNITED STATES

2759636

NATIONAL HERBARIUM

Specimens collected for the United States National Herbarium, Smithsonian Institution, Field no. 2759636, supported by subcontracts to Robert M. King from the Instituto for Organismo de Ciencias Exactas, Universidad Nacional Pedro de A. B. Mann, Director and the Smithsonian Institution.

*Fleischmanniopsis anomalochaeta* R. M. King & H. Robinson, Holotype, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



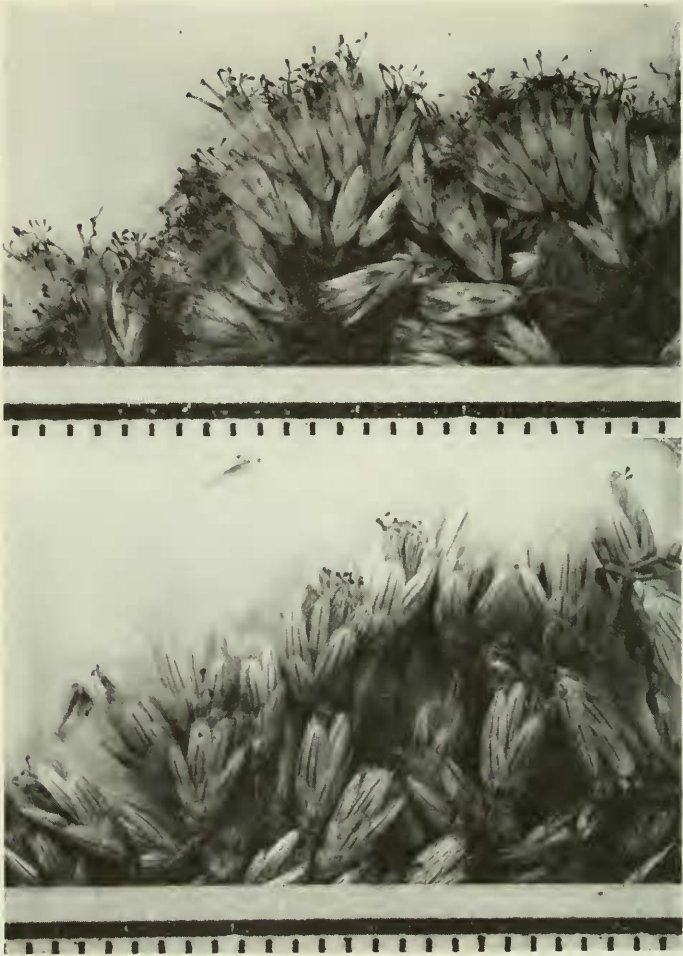
HERBARIUM NACIONAL DE MEXICO  
 Instituto de Biología U. S. A.

Estado de *San Luis Potosí*  
 Col. *San Luis Potosí* No. *10*  
*San Luis Potosí* *leucocephalum* Smith  
 Lugar *San Luis Potosí*  
 Hab. *San Luis Potosí*  
 Fecha *1977* Det.  
 Nombre vulgar  
 Observaciones *...*

*Fleischmanniopsis langmaniae*

Dr. R. M. King, and M. Robinson

Fleischmanniopsis langmaniae R. M. King & H. Robinson, Holotype, United States National Herbarium.



Enlargements of heads of Fleischmanniopsis. Top. F. anomalochaeta; bottom. F. langmaniae.

#### Literature Cited

- King, R. M. and H. Robinson 1971. Studies in the Eupatorieae (Asteraceae). XLV. A new genus, Fleischmanniopsis. Phytologia 21: 402-404.